

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

SF30, Page 1 of 4 Pages
OMB No. 0690-0008

1. CONTRACT ID CODE	
2. AMENDMENT/MODIFICATION NO. Amendment 0005	3. EFFECTIVE DATE JULY 19, 2000
4. REQUISITION/PURCHASE REQ. NO. NRMAE000000020	5. PROJECT NO. (If applicable)
6. ISSUED BY CODE U.S. DEPARTMENT OF COMMERCE/NOAA ACQUISITION MANAGEMENT DIVISION IT CONTRACTS BRANCH, OFA 611 1305 EAST WEST HIGHWAY, ROOM 7604 SILVER SPRING, MD 20910	7. ADMINISTERED BY CODE (If other than Item 6)
8. NAME AND ADDRESS OF CONTRACTOR (No. Street, County, State and Zip Code) ALL OFFERORS IN THE COMPETITIVE RANGE Code: Facility Code:	<div> <input checked="" type="checkbox"/> 9.A. AMENDMENT OF SOLICITATION NO. 52-DDNR-0-90030 9.B. DATED (See Item 11) MARCH 28, 2000 </div> <div> <input type="checkbox"/> 10A. MOD OF CONTRACT/ORDER NO. 10B. DATED (See Item 13) </div>

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [] is extended, [X] is not extended. Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

NOT APPLICABLE

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

- [] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) _____ THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.
- [] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
- [] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
- [] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [] is not, [] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible).

1. This Amendment revises the Solicitation as follows:

SECTION C

o Section C.2, Procurement Objective, first sentence of the fifth paragraph is changed to read as follows:

"No more than 94% of the annual funding, beginning in FY2001, will be dedicated to the components of the HPCS specified in the RFP." Page C-3 of the Solicitation should be removed and replaced with the enclosed Page C-3.

[Continued on Page 3]

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remain unchanged and in full force and effect.

15A. NAME AND TITLE OR SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	16B. UNITED STATES OF AMERICA _____ (Signature of contracting officer)
15C. DATE SIGNED	16C. DATE SIGNED

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o Section C.4.2.3, Hierarchical Storage Management System (HSMS), add the following bullet as a requirement:

"When the Government assumes ownership of the HSMS, it must be fully functional in the absence of the LSC and AC." Page C-15 of the Solicitation should be removed and replaced with the enclosed Page C-15.

o Section C.4.2.4, Home Directory Filesystem Server (HFS), add the following bullet as a requirement:

"When the Government assumes ownership of the HFS, it must be fully functional in the absence of the LSC and AC." Page C-16 of the Solicitation should be removed and replaced with the enclosed Page C-16.

o Section C.4.5, Hierarchical Storage Management System (HSMS), the fourth paragraph is changed to read as follows:

"The HSMS becomes the property of the Government at the end of FY2003. When the Government assumes ownership of the HSMS, it must be fully functional in the absence of the LSC and AC." Page C-24 of the Solicitation should be removed and replaced with the enclosed Page C-24.

o Section C.4.6, Home Directory Filesystem Server (HFS), the second paragraph is changed to read as follows:

"The HFS becomes the property of the Government at the end of FY2003. When the Government assumes ownership of the HFS, it must be fully functional in the absence of the LSC and AC." Page C-27 of the Solicitation should be removed and replaced with the enclosed Page C-27.

o Section C.4.9.5, LTD, the second paragraph is changed to read as follows:

"Within 30 days after award of contract, the Government shall have pre-delivery access to system components similar to those proposed for the HPCS to develop and test codes and scripts. Technical support shall be provided for this purpose." Page C-33 of the Solicitation should be removed and replaced with the enclosed Page C-33.

o Section C.4.10.3, Available Cooling, replace the second paragraph to read as follows:

"Cooling is delivered to the Computer Room through a six-inch piping system from the mechanical room at a temperature of 45 degrees Fahrenheit, plus or minus 2 degrees. The pipe enters the Computer Room in a trench that is 3-4 feet deep under the raised floor in the center of the Computer Room, as indicated in Figure 2. It is currently connected to five (5) air conditioning (blazer) units located on the raised floor, as well as to the refrigeration units of the existing SGI/Cray systems. Two (2) air conditioning units, each rated at 20 tons, are located at the following locations: (1) along the front wall adjacent to the loading dock/storage room and (2) to the left rear of the Computer Room near the Vendor Area Room. The remaining three units, each rated at 15 tons, are located in the middle of the Computer Room. The locations of these five units are indicated by blue rectangles in Figure 3, which shows details of the room layout as of the summer of 2000. These existing air conditioning units, with compressors, refrigeration circuits, etc., are estimated to be 21 years old; because of their age, the Contractor must replace them as part of the site preparation work." Page C-37 of the Solicitation should be removed and replaced with the enclosed Page C-37.

o Section C.4.10.5, Available Floor Space and Raised Floor Replacement, replace the third paragraph to read as follows:

"The raised floor shown in green in Figure 5 was installed in 1980. Prior to December 1, 2001, the Contractor must have completed the replacement of all sections of the raised floor installed in 1980. This replacement must include new tiles, supports, and stringers, with the raised floor system securely bolted to the surrounding, newer raised floor supports. The raised floor beneath the room (Vendor Area) at the left rear of the Computer Room need not be replaced until that time when this area is to be used to support HPCS system. The floor tiles beneath the two Government-furnished STK Powderhorn silos need not be replaced until that time when these two silos are moved. Even before December 2001, the Government recommends replacement of any sections of this old flooring prior to its being used to support new equipment. In fact, the Government recommends that, before installing new equipment, the Contractor test the integrity of all floor sections and

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supports and, if necessary, replace any floor sections, including stringers and supports, that are found to be inadequate." Page C-41 of the Solicitation should be removed and replaced with the enclosed Page C-41.

o Section C.4.10.6, Facility Renovations to Provide Rooms for Operators and Printers, replace the first paragraph to read as follows:
"Under the current arrangements, the GFDL Operations staff operates the SGI/Cray systems from workstations located in the Computer Room itself. In addition, the operations staff is responsible for managing printers located in the Computer Room. These printers are currently the primary means by which GFDL users produce printed output. The Government has concluded that the operations control area should be moved out of the main computer room for two reasons: to provide the Operations staff with a quiet work environment, and to increase the raised floor space available for equipment. (Offerors should be aware that the Operations and Maintenance workstations for the SGI/Cray systems will require additional FDDI and Ethernet cabling if the operations control area is moved to a location farther from these systems than the current location during the overlapped operations period.) Users will need to have reasonable access to the Operations staff, in a manner that maintains acceptable physical security and restricted access to the Computer Room. In addition, user bins should be accessible by users while being located close to the printers, which should also be moved out of the main computer room." Page C-41 of the Solicitation should be removed and replaced with the enclosed Page C-41.

Also, a door between the Operations Room and the User Support Room was omitted in the Figure 6 drawing. A revised Figure 6 has been prepared that included the door. Page C-47 of the Solicitation should be removed and replaced with the enclosed Page C-47.

SECTION F

o Section F.3.3, Credit for System Downtime, replace the third paragraph to read as follows:
"If the HSMS remains inoperable and cannot perform the workload due to an equipment or software malfunction through no fault or negligence of the Government, beyond the availability requirements of Section C.4.5.5, downtime credits shall accrue. While the Government-furnished Timberline and Redwood tape drives are in use, their failure shall not count against HSMS availability as long as a bona fide attempt is made by the Contractor to repair the failed drives immediately. If, during any given month, the HSMS availability falls below the level specified in Section C.4.5.5, the Government shall (i) pay a reduced monthly lease amount for the HSMS, in the case of a lease, or (ii) be refunded a portion, to be negotiated, of the purchase price of the HSMS, in the case of a purchase, based upon the percentage of time the system was operational. Page F-2 of the Solicitation should be removed and replaced with the enclosed Page F-2.

SECTION M

M.5, Price is revised to add the following:

"Price proposals only require a detailed tracking of pricing for the Base Contract Period. Therefore, the Tables (provided in Section J) only need to be constructed through month 36, which refers to September 30, 2003. Offers need not provide detailed pricing tables for the Option Contract Period. For the Contract Option Period, Offerors are required to state in their proposal that their prices will be at or below the dollar thresholds cited in Section B, Notes to Offerors. If proposed prices for the Contract Option Period are below the cited thresholds, the Offeror needs to state by how much."
Pages M-8 and M-9 of the Solicitation should be removed and replaced with the enclosed Pages M-8 and M-9.

knowledge to the research community and the other customers of the Laboratory's research. Consequently, the functional capability of the large-scale computers, hierarchical storage management system, analysis and visualization platforms, desktop workstations, and network bandwidth must be well-matched in a way that minimizes bottlenecks to the flow of information while maximizing performance. Achieving this proportionality in the acquired capabilities is an essential goal of this procurement.

Additionally, the computational resources available to GFDL must balance its scientific needs throughout the life of the contract, so the Government requires a phased delivery of all components of the HPCS. The initial delivery of the HPCS must provide a substantial increase over current capabilities in computational throughput for the Laboratory. At least one substantial upgrade to the sustained throughput must be offered during the base contract period, with archiving and other HPCS capabilities increasing commensurately. The individual components of the HPCS need not be upgraded simultaneously, but balanced performance at all times is desired and will be evaluated by the Government.

The period covered under the Project Agreement, FY2000-FY2006, will be divided into a base contract period (FY2000-2003), followed by an option period (FY2004-2006). During the base contract period, the contract will be renewed each year subject to the availability of funds. The decision to exercise the option in FY2004 will be made by evaluating a proposal, submitted by the incumbent Contractor at the end of FY2002, that provides detailed specifications for the HPCS during the option period. If the option is exercised, the contract will be renewed each year subject to the availability of funds. The final year of HPCS operations (FY2006) will overlap with the acquisition and acceptance of successor computational capabilities.

No more than 94% of the annual funding, beginning in FY2001, will be dedicated to the components of the HPCS specified in the RFP. Under direction from the Government, the remaining funds will be used by the Contractor to refine key areas of the HPCS, or other aspects of GFDL's computing environment covered under the scope of the contract, that will improve performance, efficiency, or usability of the overall system. These areas may include, but will not be limited to, node, disk, or memory upgrades, visualization, server, and desktop capabilities and the supporting network infrastructure, and additional support. Key areas will be identified on an as-needed basis by performance assessments, including an annual system performance review by the Government. The Government and the HPCS Contractor will work together to identify the necessary items that will best meet GFDL's computing needs. Actual purchases for this purpose will be determined solely by the Government.

Since computing is essential to GFDL's scientific objectives, the HPCS must be characterized by a very high level of reliability and availability. System availability of at least 96% (24 hours/day, 7 days/week) has been the historical goal for GFDL's high-performance computers, and this level of availability must be met by each component of the HPCS.

- ! All of the data residing in GFDL's DMF data archive readable by desktop workstations throughout the base contract period
- ! The legacy archive readable and writable by the T94, T932, and T3E until these systems are de-installed
- ! A legacy archive benchmark reading files from the legacy archive that completes in no more than 1800 seconds throughout the life of the legacy archive

If the T94 is used to serve the legacy archive

- ! Contractor provided system administration for the T94, including DMF, after the current contract expires at the end of October 2000
- ! LSC and AC access to the legacy archive via a high-performance HIPPI or FDDI interface to the T94
- ! If the T94 is still in use to serve the legacy archive at the expiration of it's warranty at the end of September 2001, Contractor assumption of its hardware maintenance payments
- ! If the T94 is not used to serve the legacy archive
 - ! Functionally equivalent access to the legacy archive
 - ! T932 and T3E access to the legacy archive via point-to-point HIPPI connections until they are de-installed
 - ! Availability of the rcp command and NFS v.2 on the legacy archive server
- ! LSC and AC access to the data in the legacy archive
- ! After October 2000, Contractor maintenance of the two STK Powderhorn tape libraries, the 8 Timberline and 4 Redwood tape transports, and the ESCON director while in use
- ! Dedication of the Timberline and Redwood tape transports to reading files from the legacy archive unless all legacy data has been offloaded to different media
- ! When the Government assumes ownership of the HSMS, it must be fully functional in the absence of the LSC and AC.

C.4.2.4 Home Directory Filesystem Server (HFS)

- ! A single high-availability /home file system that provides the home directory at login for all computers and workstations at GFDL
- ! Initial delivery of a minimum of 1 dTB user-accessible formatted disk, exclusive of system disk, on a fault-tolerant disk subsystem
- ! At least one substantial upgrade to the disk capacity of the HFS during the base contract period

- ! Government ownership of the HFS at the end of FY2003
- ! Transfer of all data residing in GFDL's workstation home directories at the time of the HPCS installation to the new /home filesystem
- ! Transfer of all of the data residing in the T90 and T3E home directories to the new /home filesystem when the T932 and T3E are de-installed
- ! Availability of the /home filesystem on the LSC and AC via a protocol such as NFS v.3 or DCE/DFS, or as a shared filesystem
- ! Availability of the /home filesystem, with read/write access, on the T932, T94, and T3E, and user workstations via NFS v.2 and the standard UNIX rcp command
- ! NFS v.3
- ! Implementation of per-user and per-group disk space quotas for the /home file system
- ! The ability to view the disk space quota and current disk use via user commands on the LSC, AC, the T932, T94, and T3E, and user workstations
- ! Failover capability in the HFS
- ! An availability level of 99.99% for the /home filesystem
- ! Failover to backup resources completed within 60 seconds
- ! When the Government assumes ownership of the HFS, it must be fully functional in the absence of the LSC and AC.

C.4.2.5 Connectivity

- ! Connection of the LSC, AC, HSMS, and HFS to GFDL's Gigabit Ethernet (GBE) workstation backbone at a minimum of GBE speeds
- ! Failover access to the HPCS via the GBE backbone
- ! High-performance file transfers at GBE speeds or better between the LSC, AC, HSMS, and HFS
- ! Connection of the LSC, AC, HSMS, and HFS to GFDL's computer-room FDDI backbone via single-attach interfaces
- ! Availability of the /archive and /home filesystems within the HPCS as discussed in sections C.4.5 and C.4.6.
- ! An upgrade to GFDL's access to the Internet, to a minimum of T-3 or its equivalent
- ! Contractor responsibility for all costs associated with the installation and maintenance of the upgraded Internet connection

C.4.2.6 Software

- ! HPCS software that meets all Government standards
- ! Contractor maintenance of all software delivered with the HPCS
- ! Availability of software releases at no additional charge

and AC applications include FORTRAN sequential and direct-access files and C text and binary stream files.

C.4.4.2.4 AC reliability, availability, and support

The Government desires the ability to test OS and application software upgrades in isolation from the interactive and batch production resources on the AC, for example, in a separate software partition.

User login to a single hostname is desirable.

Failover capability for job queuing and scheduling shall be provided. It is required that when any set of resources (such as disk or memory) in the AC fails, batch jobs using those resources are rerun without user intervention, only interactive sessions hosted on the failed resources are lost, and users must continue to be able to login interactively. It is desirable that failover be to processors that are binary-compatible with and running the same OS level as the failed processors. The capability of the AC to operate and be repaired in degraded mode is required. The AC shall be fully functional when any part of the LSC is halted or powered off. It is desirable that the AC have no single point of failure. The Government requires an availability level of 96% on every computer in the AC.

C.4.5 Hierarchical Storage Management System

The Government envisions a 2-tiered storage scheme for its data archive, comprised of nearline storage (robotically mounted at high speed) and offline storage (with an emphasis on high reliability), that can effectively satisfy the requests for scientific data that permeates GFDL's scientific workload (as discussed in section C.3.4). If disk is required for caching or staging of files within the HSMS, it shall be fault-tolerant and in addition to the required LSC and AC disk specified in sections C.4.4.1.3 and C.4.4.2.3. The offline data may be mounted either robotically or manually. For nearline and offline data, a data recovery service shall be provided by the Contractor in the event of media failure. Both tape reliability and the data recovery service will be evaluated.

The data archive shall be presented to the users as a single /archive filesystem image. All storage media used in the HSMS shall be provided by the Contractor, including any new media used in the legacy archive but excluding the Timberline and Redwood tapes in the legacy archive at the time of HPCS installation.

The HSMS becomes the property of the Government at the end of FY2003. **The HSMS becomes the property of the Government at the end of FY2003. When the Government assumes ownership of the HSMS, it must be fully functional in the absence of the LSC and AC.**

C.4.5.1 HSMS performance

HSMS performance will be evaluated by an archive benchmark that will transfer a mix of large and small files between local disk on the AC and the nearline tier. The benchmark shall be run concurrently with the AC throughput benchmark and complete on the proposed HSMS in no more than 3600 seconds of wallclock time. Kernels and microbenchmarks that test additional aspects of the HSMS may also be used for evaluation.

Data movement between nearline and offline tiers will be evaluated but need be demonstrated only when the offline tier is delivered.

The LSC and AC shall be capable of accessing all data in the legacy archive. If the T94 is used to serve the legacy archive, the LSC and AC shall access the legacy archive via a high-performance HIPPI or FDDI interface to the T94.

The two STK Powderhorn tape libraries and the 8 Timberline and 4 Redwood tape transports, including integrated IBM ESCON controllers and the IBM ESCON director, currently owned by GFDL will be provided as Government-furnished equipment. There are four ESCON interfaces available on the ESCON director. After October 2000, the Contractor will be responsible for maintaining these tape libraries, drives, and the ESCON director while in use. The Timberline and Redwood tape transports shall be dedicated to reading files from the legacy archive unless all legacy data has been offloaded to different media. The legacy media and tape drives do not count toward the nearline tier requirements of C.4.5.2 and C.4.5.3.

C.4.6 Home Directory Filesystem Server (HFS)

The Government requires a single high-availability /home filesystem which will provide the home directory at login for all computers and workstations at GFDL. A minimum of 1 dTB user-accessible formatted disk, exclusive of system disk, shall be delivered initially. This disk space shall reside on a fault-tolerant disk subsystem whose performance in degraded mode will be evaluated. At least one substantial upgrade to the disk capacity of the HFS is required during the base contract period.

The HFS becomes the property of the Government at the end of FY2003. **The HFS becomes the property of the Government at the end of FY2003. When the Government assumes ownership of the HFS, it must be fully functional in the absence of the LSC and AC.**

Performance of the /home filesystem server (HFS) will be evaluated during Acceptance Testing by a benchmark that transfers files between the HFS and the LSC and AC.

All of the data residing in GFDL's workstation home directories at the time of the HPCS installation shall be transferred to the new /home filesystem. All of the data residing in the T90 home directories (which reside on the T94) and T3E home directories shall be transferred to the new /home filesystem when the T932 and T3E are de-installed.

The /home filesystem shall be available on the LSC and AC via a protocol such as NFS v.3 or DCE/DFS, or as a shared filesystem. The /home filesystem shall also be available with read/write access on the T932, T94, T3E, and user workstations via NFS v.2 and the standard UNIX rcp command. NFS v.3 is required for use by future workstations.

The /home filesystem server shall implement per-user and per-group disk space quotas for the /home filesystem. The quota and current use shall be viewable via user commands on the LSC, AC, the T932, T94, and T3E, and user workstations.

The Government requires failover capability in the HFS and requires an availability level of 99.99% for the /home filesystem. Failover to backup resources shall be completed within 60 seconds on the HFS.

The ability for the HFS to operate and be repaired in degraded mode is desirable.

The Government requires an itemized list of all Contractor-supplied hardware and software items, and documentation of these items, in printable electronic form.

Training at GFDL shall be provided for approximately 30 GFDL computer specialists and operators in the following areas on the LSC, the AC, HSMS, and the HFS:

- system administration and tuning
- hardware operation and system overview

Training at GFDL shall be provided for approximately 100 applications programmers in the following areas on the LSC and the AC:

- application and shell programming
- programming languages and tools
- HSMS software user interface

The Contractor shall provide the Government with a list of additional potential training topics.

The Government may wish to begin training when pre-delivery access to systems similar to those proposed for the HPCS, cited in Section C.4.9.5, is granted.

C.4.9.4 Automated backup

Automated backup shall be provided for the system disks on the LSC, AC, HSMS, and the entire /home filesystem on the HFS. Software that allows users to restore /home files via a graphical interface is desirable.

For the /home filesystem, a combination of full and incremental backups shall be done to robotically mounted tapes. These backups shall make it possible to restore files to their state on any day during the previous two calendar months. Minimal impact of these backups on the network load is desired.

For the /home filesystem, a history of bimonthly full backups shall be produced for shelf storage until the end of the HPCS system life. It shall be possible to restore files from these backups until the end of the HPCS system life.

All hardware and storage media used for backup shall be provided by the Contractor.

C.4.9.5 LTD

The Government requires a pre-award live test demonstration (LTD) on the HPCS hardware offered initially or its functional equivalent. A description of the LTD is provided in Section L.5.5. The Government requires an LTD on the hardware offered for all upgrades at the time of each upgrade.

Within 30 days after award of contract, the Government shall have pre-delivery access to system components similar to those proposed for the HPCS to develop and test codes and scripts. Technical support shall be provided for this purpose.

Acceptance testing shall begin within 90 days of award. Acceptance of all upgrades shall begin on the first day of the month proposed for the upgrade.

Table 4a. GFDL Power Usage and Expenditures by Fiscal Year for FY 1994 - FY 2000

	Annual Use (KwH)	Expenditure	Avg. Cost/KwH
FY 1994	6,652,160	\$420,812	\$0.0633
FY 1995	6,286,400	\$430,826	\$0.0633
FY 1996	9,095,360	\$631,267	\$0.0685
FY 1997	7,700,800	\$511,684	\$0.0694
FY 1998	8,085,760	\$554,758	\$0.0664
FY 1999	8,826,400	\$713,948	\$0.0686
FY 2000 (thru Jan.)	3,025,600	\$212,176	\$0.0809

C.4.10.3 Available Cooling

Two centrifugal chillers and cooling towers make up the primary Chilled Water Plant, which is located in the mechanical room and tower bay southeast of the Transformer Room (see Figure 2). These chillers will be rated at 400 and 380 tons and are referred to as Chiller #2 and #3 respectively. Chiller #2, the new 400-ton chiller, is being installed in the spring of 2000 along with new cooling towers and pumps. Chiller #3, installed in 1996, will be upgraded from 350 tons to 380 tons capacity as part of this renovation. The Government desires that these systems be operated in such a way that only one chiller is required on most days. The two chillers are intended to provide redundancy and to only be required on days in which cooling demands are high. However, during initial installation of the HPCS, both chillers may be needed on warm days in order to support both the new system and the SGI/Cray systems, running in parallel. Chiller #4, located in the Transformer Room, is approximately 21 years old and will not be considered as a part of the normally operating Chilled Water Plant after the spring 2000 renovation. This chiller, which has been derated from 225 to 205 tons, will only be used for emergencies or as backup to partially support the cooling load during short periods of time when one of the primary chillers is taken off-line for servicing or repair.

Cooling is delivered to the Computer Room through a six-inch piping system from the mechanical room at a temperature of 45 degrees Fahrenheit, plus or minus 2 degrees. The pipe enters the Computer Room in a trench that is 3-4 feet deep under the raised floor in the center of the Computer Room, as indicated in Figure 2. It is currently connected to five (5) air conditioning (blazer) units located on the raised floor, as well as to the refrigeration units of the existing SGI/Cray systems. Two (2) air conditioning units, each rated at 20 tons, are located at the following locations: (1) along the front wall adjacent to the loading dock/storage room and (2) to the left rear of the Computer Room near the Vendor Area Room. The remaining three units, each rated at 15 tons, are located in the middle of the Computer Room. The locations of these five units are indicated by blue rectangles in Figure 3, which shows details of the room layout as of the summer of 2000. These existing air conditioning units, with compressors, refrigeration circuits, etc., are estimated to be 21 years old; because of their age, the Contractor must replace them as part of the site preparation work.

The Contractor has the responsibility to develop and implement an air conditioning plan for the

Computer Room that provides adequate cooling, humidification and dehumidification to maintain the environment of the room at the operating specifications needed for all of the equipment in the room during the contract life. Because the five air conditioning units are near the end of their useful life. If it chooses to use these units as part of his air conditioning plan prior to this termination date, the Contractor will be responsible for their operation from the start of HPCS installation until they are turned off and removed by the Contractor.

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raised floor is designed to support a uniform live load of 250 pounds per square foot, with a deflection of not more than 0.040 inch. Great care must obviously be taken in moving heavy equipment across any raised floor so as to distribute equipment loads evenly.

The raised floor shown in green in Figure 5 was installed in 1980. Prior to December 1, 2001, the Contractor must have completed the replacement of all sections of the raised floor installed in 1980. This replacement must include new tiles, supports, and stringers, with the raised floor system securely bolted to the surrounding, newer raised floor supports. The raised floor beneath the room (Vendor Area) at the left rear of the Computer Room need not be replaced until that time when this area is to be used to support HPCS system. The floor tiles beneath the two Government-furnished STK Powerderhorn silos need not be replaced until that time when these two silos are moved. Even before December 2001, the Government recommends replacement of any sections of this old flooring prior to its being used to support new equipment. In fact, the Government recommends that, before installing new equipment, the Contractor test the integrity of all floor sections and supports and, if necessary, replace any floor sections, including stringers and supports, that are found to be inadequate.

The Government's past strategy for floor space usage in the GFDL Computer Room has been to limit the amount of space available to the new Contractor to no more than half of the total raised floor space within the room. The purpose of this was to leave sufficient space unoccupied so that the follow-on contractor would be able to install and operate the next system in parallel with the current system. With this objective in mind, the Government desires that the Contractor restrict his use of floor space, both raised and solid, to no more than half of the total space within the Computer Room. If the new equipment uses more than half of the available floor space, the proposal must provide recommendations on how the Government can design the follow-on procurement and installation in order to provide for overlap of systems.

C.4.10.6 Facility Renovations to Provide Rooms for Operators and Printers

Under the current arrangements, the GFDL Operations staff operates the SGI/Cray systems from workstations located in the Computer Room itself. In addition, the operations staff is responsible for managing printers located in the Computer Room. These printers are currently the primary means by which GFDL users produce printed output. The Government has concluded that the operations control area should be moved out of the main computer room for two reasons: to provide the Operations staff with a quiet work environment, and to increase the raised floor space available for equipment. (Offerors should be aware that the Operations and Maintenance workstations for the SGI/Cray systems will require additional FDDI and Ethernet cabling if the operations control area is moved to a location farther from these systems than the current location during the overlapped operations period.) Users will need to have reasonable access to the Operations staff, in a manner that maintains acceptable physical security and restricted access to the Computer Room. In addition, user bins should be accessible by users while being located close to the printers, which should also be moved out of the main computer room.

With these objectives in mind, the Government requires that the current Ready Room and PC Storage Room (Figure 3) be renovated to provide an Operations Room and a User Support Room. The Operations staff will oversee and manage the systems and networks from the new Operations Room. The User Support Room will be divided into a Printer Area and a User Area, separated by a wall containing user bins and an input counter. The user bins are cubicles reserved for individual users' printed output. The input counter is an open counter area where users can communicate directly with the operations staff and packages (FedEx, UPS, etc.) can be received by Operations.

The upper frame of Figure 6 is an enlargement of the current layout of the Ready Room, PC Storage Room, and Operator's Lounge as taken from Figure 3. The lower frame of this figure shows a schematic of a proposed layout for the Operations Room and User Support Room and their position relative to the Operators' Lounge.

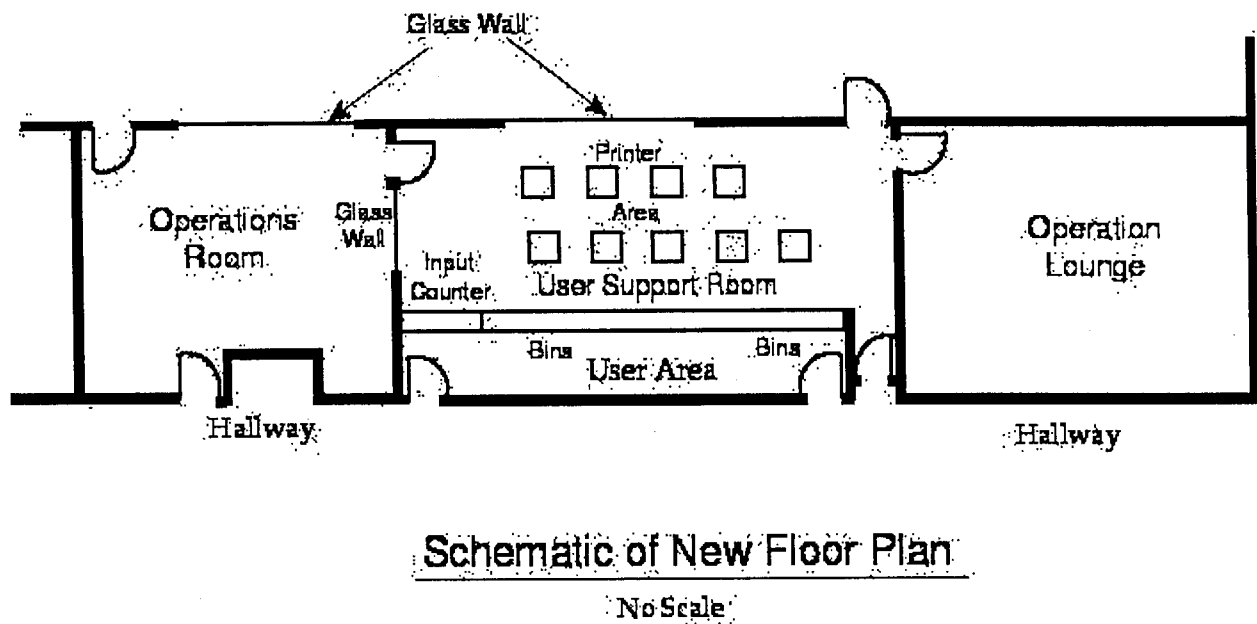
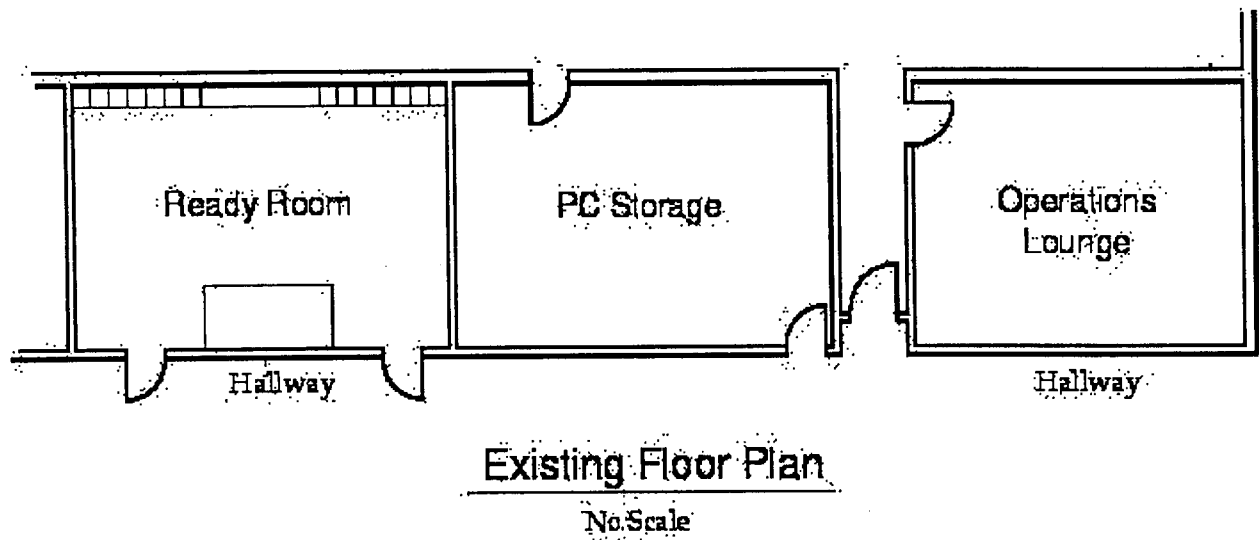


Figure 6. Original Floor Plan and Schematic of Proposed New Design

of the Government. If, during any given month, the AC availability falls below the level specified in Section C.4.4.2.4, the Government shall pay a monthly lease amount for the AC based upon the percentage of time the system was operational. For example, if the AC was only operational 95% of the required available time during a specific month because of AC downtime, the Government would pay the Contractor 95% of the monthly lease charge for the AC.

If the HSMS remains inoperable and cannot perform the workload due to an equipment or software malfunction through no fault or negligence of the Government, beyond the availability requirements of Section C.4.5.5, downtime credits shall accrue. While the Government-furnished Timberline and Redwood tape drives are in use, their failure shall not count against HSMS availability as long as a bona fide attempt is made by the Contractor to repair the failed drives immediately. If, during any given month, the HSMS availability falls below the level specified in Section C.4.5.5, the Government shall (i) pay a reduced monthly lease amount for the HSMS, in the case of a lease, or (ii) be refunded a portion, to be negotiated, of the purchase price of the HSMS, in the case of a purchase, based upon the percentage of time the system was operational.

If the HFS remains inoperable and cannot perform the workload due to an equipment or software malfunction through no fault or negligence of the Government, beyond the availability requirements of Section C.4.6, downtime credits shall accrue. If, during any given month, the HFS availability falls below the level specified in Section C.4.6, the Government shall (i) pay a reduced monthly lease amount for the HFS, in the case of a lease, or (ii) be refunded a portion, to be negotiated, of the purchase price of the HFS, in the case of a purchase, based upon the percentage of time the system was operational.

F.4 PLACE OF DELIVERIES/INSTALLATIONS

The Contractor shall be responsible for transportation to, and installation of all hardware and software at the Government's site at the following address:

US Department of Commerce/NOAA/GFDL
Princeton University
Forrestal Campus, U.S. Route 1
Princeton, NJ 08542

F.5 DELIVERY/INSTALLATION REQUIREMENTS

The Government reserves the right to delay the installation by up to 30 days, at no additional cost to the Government, provided that:

a) the Contractor shall receive written notice from the Contracting Officer 30 days prior to the scheduled installation date.

b) Any installation delays beyond 30 days shall be mutually agreed to by the Contractor and the Government.

The Government shall provide the Contractor with access to the site for purposes of

During discussions Offerors will be given an opportunity to address unfavorable reports of past performance, if the Offeror has not had a previous opportunity to review the rating. Recent contracts will be examined to ensure that corrective measures have been implemented. Prompt corrective action in isolated instances may not outweigh overall negative trends.

If an Offeror does not have a past performance history relating to this solicitation, the Offeror will not be evaluated favorably or unfavorably on this factor.

M.5. PRICE

The price proposal will be evaluated for magnitude and realism, but will not be numerically scored. To be considered acceptable under this solicitation, the Offeror must propose fixed prices for the items being acquired. **Price proposals only require a detailed tracking of pricing for the Base Contract Period. Therefore, the Tables (provided in Section J) only need to be constructed through month 36, which refers to September 30, 2003. Offers need not provide detailed pricing tables for the Option Contract Period. For the Contract Option Period, Offerors are required to state in their proposal that their prices will be at or below the dollar thresholds cited in Section B, Notes to Offerors. If proposed prices for the Contract Option Period are below the cited thresholds, the Offeror needs to state by how much.**

M.6. EVALUATION FACTORS

All Technical and Past Performance portions of proposals will be evaluated using the criteria listed in Table 1 below. Each Offeror will be assigned a Summary Rating for its Technical and Past Performance, determined through evaluation of its proposal.

Table 1. Evaluation Criteria

ADJECTIVE RATING	DESCRIPTION
Unacceptable	PROPOSED APPROACH HAS MANY DEFICIENCIES OR PROPOSED APPROACH IS TOTALLY WITHOUT MERIT. PAST PERFORMANCE UNACCEPTABLE.
Inadequate	PROPOSED APPROACH HAS ONE OR MORE DEFICIENCIES OR MAJOR WEAKNESSES, AND IS NOT CAPABLE OF IMPROVEMENT TO ACCEPTABLE OR BETTER WITHOUT ADOPTION OF A NEW APPROACH. PAST PERFORMANCE MORE NEGATIVE THAN POSITIVE.
Marginal	PROPOSED APPROACH HAS DEFICIENCIES OR SIGNIFICANT WEAKNESSES, BUT IS CAPABLE OF IMPROVEMENT TO ACCEPTABLE OR BETTER WITHOUT ADOPTION OF A NEW APPROACH. NO OR NEUTRAL PAST PERFORMANCE.

Acceptable	<p>PROPOSED APPROACH FULLY MEETS THE REQUIREMENT WITH NO DEFICIENCY OR SIGNIFICANT WEAKNESS.</p> <p>PAST PERFORMANCE MORE POSITIVE THAN NEGATIVE.</p>
Good	<p>PROPOSED APPROACH FULLY MEETS REQUIREMENT AND HAS SOME SUPERIOR FEATURES WITH NO DEFICIENCY OR SIGNIFICANT WEAKNESS.</p> <p>PAST PERFORMANCE ACCEPTABLE IN ALL AREAS/SUPERIOR IN SEVERAL AREAS.</p>
Outstanding	<p>PROPOSED APPROACH FULLY MEETS REQUIREMENT AND IS SUPERIOR IN MANY FEATURES WITH NO DEFICIENCY OR WEAKNESS.</p> <p>PAST PERFORMANCE ACCEPTABLE IN ALL AREAS/SUPERIOR IN MOST AREAS.</p>